Exam. Code : 107406
Subject Code : 2175

B.Sc. Bio-Technology Semester—VI

BIOPHYSICAL AND BIOCHEMICAL TECHNIQUES-B

Paper—BT-6

Time Allowed—3 Hours] [Maximum Marks—40

SECTION—A

(Compulsory)

Note :— Attempt *all* questions. Each question carries 1 mark.

1. What are the salient features of a mass analyser ?
2. What is the difference between intrinsic and extrinsic fluorescence ? Cite an example for each.
3. What is the effect of shape of molecule to be separated on its electrophoretic separation ? Justify with appropriate example.
4. What is meant by gradient gel electrophoresis ? Comment on its significance.
5. How isoelectric pH of a protein can be determined ?
6. What is the principle of Restriction Fragment Length Polymorphism (RFLP) technique ?

7. How radioactivity could be detected by photographic methods ? Give a suitable example.

8. What is the significance of internal standard in scintillation counting ? List salient features of an internal standard.

SECTION—B

Note :— Attempt ***five*** questions. Each question carries **4** marks.

1. Explain the chemical ionization method in detail. What is the significance of chemical ionization over electron ionization ?

2. List ionization techniques which can be used for ion generation in liquid phase. Which one of these is predominantly used and why ?

3. Discuss in detail the role of buffer in an electrophoretic separation of components in a sample.

4. Explain in detail the principle and process of discontinuous gel electrophoresis.

5. How the proteins could be separated on the basis of their iso-electric point ?

6. What is the principle of capillary electrophoresis and how it differs from conventional electrophoretic methods ?

7. What is meant by radioactive decay and how different radioactive molecules decay ?

8. What is meant by isotopes ? Discuss about the most common isotopes used in biological studies.

SECTION—C

Note :— Attempt ***two*** questions. Each question carries 6 marks.

1. Which ionization technique is most commonly used in mass spectroscopic analysis of biological molecules and why ? Support with a suitable example.

2. What are the components used in preparing a polyacrylamide gel ? Highlight the role of each component in formation of gel.

3. What is meant by 2, D-electrophoresis ? Explain the principle and working of this technique. Discuss its significance in proteomic studies

4. (a) Explain the design and principle of Geiger counter. Highlight its merits and demerits. 3

   (b) What are the components of a scintillation cocktail ? Comment on the factors affecting counting efficiency. 3